

of this new form, as compared with the long-known forms, are the simple microsporophylls and sessile ovules. The author concludes that there is no evidence of any connection between Bennettiales and angiosperms.—J. M. C.

Atmometry and the porous cup.—With the increasing attention now being given to the quantitative determination of ecological factors, it is fortunate to have the technique of one of the most fruitful fields of investigation reviewed and summarized by the worker most prominently connected with it from the beginning. Such a review of the instruments and methods of measuring the evaporating power of the air by LIVINGSTON³² has recently appeared, including descriptions of the various forms of atmometers and their operation and standardization. Prominent among the recent improvements in this field is the rotating table for standardizing the porous cups, already noted in this journal,³³ and the improved form of the non-absorbing porous atmometer devised by SHIVE³⁴ to provide against errors caused by the absorption of water by the atmometer during rainfall. The various difficulties encountered by LIVINGSTON and other workers during the ten years since he invented the present form of porous cups are discussed in a way that makes the work invaluable to all workers in this field.—GEO. D. FULLER.

Evaporation in a marsh.—In a marsh upon the borders of Lake Erie, where zonation was well marked, SEARS³⁵ has measured the rate of evaporation in the different associations for a period of four weeks following June 29, and found the highest rate above the open water in the *Scirpus* association, with the lowest in one dominated by *Calamagrostis canadensis*. The comparative values for associations dominated by *Calamagrostis*, *Typha*, *Phragmites*, *Pontederia*, *Sparganium*, *Castalia*, and *Scirpus* are correspondingly 100, 102, 113, 125, 137, 343, and 413. It is to be regretted that the observations did not extend over a longer period, and that SEARS has not reduced his results to the unit commonly used by other workers in this field, that is, to loss per day from the standard atmometer. However, it is an important addition to the data now gradually accumulating of the evaporating power of the air in various habitats.—GEO. D. FULLER.

Rachiopteris.—Miss BANCROFT³⁶ describes a large amount of material from various sources, which is referred to *Rachiopteris cylindrica*. Two types

³² LIVINGSTON, B. E., Atmometry and the porous cup. *Plant World* 18:21-30, 51-74, 95-111, 143-149. 1915.

³³ BOT. GAZ. 55:263. 1913.

³⁴ SHIVE, J. W., An improved non-absorbing porous cup atmometer. *Plant World* 18:7-10. 1915.

³⁵ SEARS, P. B., Evaporation and plant zones in the Cedar Point marsh. *Ohio Jour. Sci.* 16:91-100. *figs.* 5. 1916.

³⁶ BANCROFT, N., Contributions to our knowledge of *Rachiopteris cylindrica* Will. *Ann. Botany* 29:531-565. *pls.* 26, 27. 1915.